ANNEX D

RADIOLOGICAL PROTECTION

CITY OF HOUSTON

APPROVAL AND IMPLEMENTATION

Annex D

Radiological Protection

ANNEX REDACTED – DATA REMOVED

RECORD OF CHANGES

Annex D

Radiological Protection

Change #	Date of Change	Entered By	Date Entered

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ANNEX D

RADIOLOGICAL PROTECTION

I. AUTHORITY

See City of Houston Basic Plan, Volume I.

II. PURPOSE

The purpose of this annex is to identify those organizations and to assign to them those tasks and responsibilities needed for an effective response program. These suggested guidelines for radiological incidents will ensure that this response program will be institutionalized.

III. EXPLANATION OF TERMS

Acronyms

HDHHS	Houston Department of Health and Human Services
RRT	Radiological Response Team
RSO	Radiation Safety Officers
TDH	Texas Department of Health
TDH/BRC	Texas Department of Health/Bureau of Radiation Control

Refer to the City's Basic Plan, Volume I, for additional acronyms used in this annex.

IV. SITUATION AND ASSUMPTIONS

A. Situation

1. Radiological Hazards

The commercial and medical uses of radiological materials and the transportation of these materials make Houston susceptible to incidents that may cause releases of low levels of radiation. Radiography sources are used by industry to x-ray pipe welds. Additionally, hospitals and medical facilities use a wide range of radioactive sources within their nuclear medicine and research development programs. These materials are transported on highway and rail systems within and through the City.

2. Terrorist Activities-- Nuclear Release

Houston has been designated by the Federal Government as a potential target area. Therefore, it is possible this City's political community, industrial base and the medical research communities could be the target of terrorist groups and/or individuals.

B. Assumptions

1. There will be scenarios when the Houston Fire Department (HFD) may initially respond solo, the Houston Department of Health and Human Services (HDHHS) may initially respond solo and both Departments will respond together to a radiological incident.

2. Development of the guidelines to Radiological Incidents will significantly improve the City's ability to respond and manage a release; thereby, reducing the exposure and minimizing the risk from such an incident.

3. Professional resources (federal and state agencies) will be available to collect and disseminate the necessary data including the effects that the release would have on the community.

4. The combined organized effort to respond, manage and recover from an incident will reduce the impact and its effects on the community.

5. A combination of intelligence, training, exercising and proper equipment will be the key to ensuring a successful operation.

6. Evacuation of the population in and around a radiological release site may require some community sponsored sheltering.

V. CONCEPT OF OPERATIONS

A. General

1. This guideline consists of response and recovery teams, support teams, the intelligence community, and the Office of Emergency Management (OEM).

2. The Texas Department of Health/Bureau of Radiation Control (TDH/BRC) has the responsibility to offer training to assist local jurisdictions in their training of first responders and for the institutional inspections of all radiological sources used in Houston and Texas in general. The Texas Department of Health (TDH) maintains the civil defense shelter radiological instruments that are assigned to the HFD, HDHHS and OEM.

3. The need for aerial monitoring will be requested through channels to the 2A Disaster District Committee EOC.

4. The following steps are suggested in order to provide an effective management plan:

   a. Identify the lead agency and its personnel which will provide staffing for the Radiological Response Team (RRT).

   b. Refer to Annex C (Shelter & Mass Care) for relocation of citizens from risk area.

   c. Identify Fire Stations, HDHHS locations, and other locations having radiological monitoring instruments. See Appendix 1.

   d. Establish decontamination teams which consist of radiologists, nuclear medicine specialists, Radiation Safety Officers (RSOs) and other hazard material specialists. See Appendix 2.

e. Implement an inspection program to ensure that the radiological monitoring instruments are calibrated and in operating condition, including having fresh batteries.

f. Establish guidelines on the utilization and operation of the radiological defense (radef) instruments. See Appendix 3.

B. Phases of Management

1. Mitigation

a. Establish guidelines for Radiological Incidents

b. Select and train responders

2. Preparedness

a. Implement program training exercises

b. Ensure detection instruments are available and operational

c. Establish protocols for decontamination

3. Response

a. Initiate RRT

b. Inform public about radiation hazard

c. Contact TDH/BRC and others to request technical assistance

4. Recovery

a. Perform area radiation monitoring surveys as required

b. Decontaminate people, equipment and facilities as needed

c. Keep public informed about radiation safety

d. Assess damage

VI. ORGANIZATION & ASSIGNMENT OF RESPONSIBILITIES

A. Organization

The Fire Chief and the Director of HDHHS have responsibility for this Program. Management and coordination of this Program are accomplished by their respective agencies.

B. Assignment of Responsibilities

1. Radiation Safety Officer (RSO) and/or the HFD Haz-Mat Coordinator will:

a. Coordinate radiological response

b. Conduct damage assessment with regards to exposure and contamination

c. Provide monitoring instruments

d. Establish a comprehensive training program at the local level regarding safety issues, recognition of radiological sources (gamma, alpha, and beta), handling the source and the removal of

radiological materials

e. Provide technical assistance to the Incident Commander (IC)

f. Provide radiological monitoring at the incident site

g. Ensure notification made to OEM, TDH and other agencies as appropriate

h. Obtain adequate staffing to support incident activities

2. HFD

a. When alerted, Hazardous Materials Response Team and /or Heavy Rescue to respond

b. Assist HDHHS, as necessary

3. HDHHS

a. Notify EMS personnel of incident

b. Provide information on radiation to the public and emergency personnel

c. Inspect food and water supplies for radiation

d. Prepare press release regarding incident with respect to health issues

e. Evaluate radiation exposures of the public and responders and make recommendations to reduce exposures

4. HPD Supervisor

a. Advise police officers of potential hazards and/or dangers

b. Provide traffic control and secure the area to prevent encroachment

c. Provide escort for other support agencies responding to the scene of the incident

d. Provide comprehensive Haz-Mat awareness training

5. OEM

a. Monitor situation

b. Advise State Division of Emergency Management, if appropriate

c. Maintain extra replacement instruments from TDH

VII. DIRECTION & CONTROL

A. The HFD has responsibility for the command and control of the incident. In the absence of HFD, the RSO will assume incident command responsibilities. The IC is responsible for managing and coordinating the incident. All support agencies and personnel will report to the command post for briefing and instructions.

B. Radio communications will be conducted on the City's UHF, and 800 MHz. radio systems.

VIII. READINESS LEVELS

Refer to the City's Basic Plan, Volume I, section 3.2.2.

IX. ADMINISTRATION AND SUPPORT

A. Annex Review and Exercising

This document will be maintained and reviewed annually by the agencies that are signatories to this Annex.

B. Maintenance of Monitoring Equipment

All radiological monitoring instruments provided by the TDH are calibrated and maintained by TDH. A list of available equipment and its location is shown in Appendix 1 to this Annex.

C. Training

A continuous training program is provided through a combination of Federal, State (TDH) and local efforts.

X. ANNEX DEVELOPMENT & MAINTENANCE

The Emergency Management Coordinator is responsible for working closely with the HFD and the HDHHS in the development of this Annex. Each agency will develop its Standard Operating Guidelines (SOGs) that address each assigned task as outlined in this Annex. This annex will be reviewed annually and will be updated per section 1.4.4 of the Basic Plan.

APPENDICES

APPENDIX 1 TO ANNEX D

RADIOLOGICAL MONITORING INSTRUMENTS

LOCATED AT FIRE STATIONS

Name of Facility	Street Address	Number/Type
ANNEX REDACTED – DATA REMOVED		

Houston Department of Health and Human Services
Radiation Equipment Inventory

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Survey Meters

- 3 Ludlum 14 C 0-200 mR/hr
- 1 Ludlum 3 0-500K cpm (counts per minute)
- 4 Scintillators
- 2 Pancakes
- 5 Personal Dosimeters 0-200 mR
- 14 Personal Dosimeters 0-200R

Civil Defense Survey Meters

- 1 CDV - 718 meter 0-200 mR/hr

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ANNEX REDACTED – DATA REMOVED

Number/Type
25 CDV 777-1 Kits

Equipment in each Civil Defense kit (777-1) consists of:

- 1 low level radiation meter 0-50 mR/hr
- 1 high level radiation meter 0-500 R/hr (reading X 1000=mR)
- 4 personal dosimeters, high level radiation 0-200 R (reading X 1000=mR)
- 1 dosimeter calibration device

APPENDIX 2 TO ANNEX D

DECONTAMINATION AND RECOVERY OPERATIONS

I. Tasks

A. HFD

The Fire Chief will:

1. Be responsible to provide training in radiological response and recovery.
2. When deemed necessary, provide decontamination equipment and personnel to conduct decontamination operations.

B. OEM

Serve as the coordinating agency

C. HDHHS

The Director will:

1. Ensure that personnel operating decontaminating and recovery equipment are not overexposed to radiation.
2. Analyze damage to water and sanitation facilities and make an assessment of corrective actions needed.
3. Assist HFD with decontamination activities.

D. HPD

The Police Chief will:

1. Provide necessary personnel to maintain area security as requested by the IC.

2 Develop a SOG for the HPD

APPENDIX 3 TO ANNEX D

RADIOLOGICAL INCIDENT OPERATIONS

I. Tasks

A. In incidents where radioactive materials are involved and the HFD responds, the IC may request Fire Dispatch to:

1. Notify OEM of the incident. Provide them with information and needs, if any, of the IC. Keep OEM informed of any changes
2. If persons become contaminated with radiation, notify Emergency Medical Services (EMS)
3. Report the incident to the HDHHS and the TDH immediately and be prepared to provide the following information:
    a. Location of incident
    b. Extent of magnitude of the problem
    c. If there are any injuries
    d. Name of the carrier or company.
    e. Type of radioactive material present (determined by shipping papers located in driver's compartment if possible to obtain)
    f. Amount of radioactive material in curies or becquerels.
    g. Physical form of material (liquid, solid, or gaseous).

B. If a radiological hazard exists, the IC will coordinate and manage the situation. The IC will:

1. Establish a safe area where radiation does not exceed background.
2. If radioactive material is escaping, take steps to contain the material in as small an area as possible.
3. Ensure that appropriate protective equipment, instruments, antidotes and clothing is made available to perform assigned tasks during a hazardous chemical or radiological environment.
4. Establish control of the incident scene and permit only necessary personnel to enter.
5. Maintain shelter areas free from contamination.
6. Record names, addresses and telephone numbers of persons present at the incident site for future reference and the length of time persons are at specific location at the site.
7. Monitor the removal of contaminants and clean-up of affected area
8. Declare "All Clear" when radiation levels decrease to normal background levels.

II. DECONTAMINATION ACTIONS:

Actions to take if any persons are suspected of being contaminated:

A. Determine if any individuals are contaminated by following standard instructions.

B. If injury from radiological source is life threatening, initiate emergency medical treatment immediately. Take precautions to prevent exposure and/or the spread of contamination to other individuals and equipment.

III. TRAINING EXERCISES

The procedures for dealing with radiological incidents should be exercised.

APPENDIX 4 TO ANNEX D

RADIOLOGICAL RESPONSE TRAINING

1. The City of Houston Radiological Officer (RO) is responsible for coordinating the procedures in this appendix.

2. The purpose of this appendix is to provide guidelines and procedures for maintaining an adequate number of personnel trained to deal with radiological accidents and to maintain radiation detection instruments in operational condition.

   a. Personnel training

      1) The City of Houston will have 10 individuals trained as radiological officers.

      2) TDH/BRC provides training for Radiological Officers and radiological monitors. Courses available include:

         a) Fundamentals Course for Radiological Monitors – 8 hours

         b) Advanced Course for Radiological Monitors – 32 hours

      Additional training is also available from the Federal Emergency Management Agency (FEMA).

      3) Personnel trained in radiological protection and decontamination techniques should receive the FEMA-approved refresher training at least every three (3) years

      4) The Houston Fire Department/Hazmat Response Team shall have at least one individual trained in radiological response and on the use of radiation detection instruments on each shift.

APPENDIX 5 TO ANNEX D

PROTECTIVE ACTIONS

I. Short Term.

A. If it appears that a release of radiological materials has occurred or is possible, the Incident Commander is responsible for determining and implementing appropriate protective actions for the public in the immediate area of the incident. The Incident Commander is also responsible for advising personnel responding to the incident of the threat and determining requirements for personal protective equipment. Responders who lack hazardous materials training and appropriate personal protective equipment should not be committed to radiological incidents.

B. If it appears that a radiological release has or may affect areas beyond the incident site, the incident commander should coordinate with the EOC to agree upon a division of responsibilities for warning the public, making required notifications, implementing protective actions for the public in areas beyond the incident site, and obtaining additional resources and technical assistance.

1) Suitable initial public protective actions for a radiological incident may include evacuation and sheltering in place. Appendix 4 to Annex Q, Hazardous Materials & Oil Spill Response provides additional information on selecting public protective measures.

II. Long Term

TDH/BRC will normally conduct a detailed incident assessment, identify affected areas through radiological monitoring, recommend follow-on protective measures to protect public health, and oversee recovery operations. Long-term protective measures may be implemented by TDH or other state regulatory agencies and may include controls on the movement and use of foodstuffs, milk, and feed from contaminated areas and on the use of drinking water from contaminated sources.

APPENDIX 6 TO ANNEX D

NOTIFICATIONS

I. Local Notification.

The Incident Commander (IC) will provide information on the incident to local officials through the Houston Emergency Center. The IC shall make an initial assessment of the situation, to include an estimate of the likelihood of a release of radiological materials. If it appears that radiological materials have been released into the environment or such a release appears likely, the EOC will be activated to support the incident response.

II. State and Federal Notifications.

Houston Emergency Management, or the EOC, if activated, shall be responsible for making required emergency notifications to state and federal agencies. Radiological releases should be reported to:

A. The local Department of Public Safety (DPS) office in Region 2A, which will relay information to DPS elements and the Division of Emergency Management.

B. The Bureau of Radiation Control of the Texas Department of Health.

C. The State Environmental Hotline.

D. The National Response Center.

If incident involves a deliberate release of radiological materials, the FBI office in Houston shall be notified.